Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

utter moral degradation. This view of the subject, it may be added, derives some weight from the allusion to it in the history of our first parents, whether that history be regarded as revelation or tradition. Man has no instincts to keep guard over his physical well-being; reason enlightened by experience, and stimulated by affection, is abundantly sufficient for this end. But a moral instinct, indispensable for the preservation of the purity of his life, and thus auxiliary to conscience, is his never-failing endowment.

Remarks and criticisms upon Mr. Bowen's views were offered by the President, Dr. Bowditch, Professors Wyman, Parsons, Gray, and others; — to the general purport that the distinction in kind between instinct and intellect was generally, if not universally, admitted; the instinct of the human infant to the breast was insisted on; also that the young of animals learn to walk and use their limbs, to judge of distances, &c.; and as to memory, imagination, or the power of reproducing the sensible past in mental pictures, desires and affections, such as were conceded to the higher brutes, these are desires or affections of the mind, and, if not instinctive, presuppose intelligence; and, moreover, that to concede to animals the power of comparison and simple judgment is to concede to them intellect, — since all reasoning, according to the philosophical logicians, and even perception, may be analyzed into simple judgments, — thus bringing the question to one concerning the degree of manifestation of intellect, and as to what may be superadded to simple intellect in man. To the hypothesis which denies thought to the higher brute animals, was preferred the current hypothesis, that animals think, but that man alone thinks that he thinks.

Four hundred and ninetieth meeting.

January 8, 1861. — MONTHLY MEETING.

The PRESIDENT in the chair.

The Corresponding Secretary read letters from President Barnard of the University of Mississippi, Professor Whitney of Yale College, and Professor Hackett of Newton Theological School, in acknowledgment of their election into the Academy.

Dr. Charles Beck read a paper entitled: —

Additions to Sophocles's Glossary of Later and Byzantine Greek.

Dr. Beck introduced the subject of the *Edict of Diocletian*, issued in 301, De Pretiis Rerum Venalium. After speaking briefly of the object, the historical importance, and the discovery of six fragments (four Latin and two Greek) of this document, he adverted to the philological interest attaching more especially to the two Greek fragments, which furnish over eighty words not yet included in Prof. Sophocles's excellent and scholarly work, Glossary of Later and Byzantine Greek, and fifteen which are used in the Edict in a form or meaning not given in the Glossary. The following is a list of these words, accompanied by a brief commentary.

1. *From the Fragment of Geronthrae in Laconia.*

1. Ἀκόντιον, 15, 17. The meaning of the word is made plain by the addition ἤτοι μάστιξ. The word, which commonly signifies *javelin*, evidently has here the meaning of *stick* or *pole* for urging the cattle.

2. Ἀνηλωτός, 9, 6, *not nailed, not provided with nails*, a well-formed Greek word, from ἠλωτός, *nailed*, from the noun ἧλος, *nail.*

3. Ἀορβιτός, 15, 23, *not curved*, a Latin-Greek word, from *orbis* with the alpha privativum.

4. Ἄσημος, 17, 26, *without stamp* or *mark.* In the classical language it is especially applied to gold and silver; here to linen cloth. It appears, according to Mommsen, that the better kinds of flax were subject to a duty and marked with a stamp (σῆμα); the inferior quality not being stamped. Suidas: ἄσημος, ignobilis.

5. Ἁστίλιον, 14, 4; the Latin *hastile*, the shaft or wooden part of a spear. That the shaft alone is meant, is apparent from the adjective κράνειον and the following item, 14, 5; ἁστίλιον ἰς κοντόν.

6. Ἁψιδωτός, 15, 24, *joined.* It is a correctly formed verbal adjective from the verb ἁψιδόω.

7. Βιρωτός, 15, 28. In Latin *birotus, two-wheeled.*

8. Βόσιος, 8, 6, *belonging to an ox*, from βοῦς.

9. βουρδών, 14, 10, either the same as *mulus*, indiscriminately the offspring of a male ass and mare, or of a male horse and female ass; or, according to Ebrardus Betuniensis (Du Cange, s. v. *bardones*), the offspring of a male horse and female ass, while *mulus* is the offspring of a male ass and mare.

10. Γαβάθα, 15, 41; a *vessel*.

11. Δελματική, 17, 1. 6. 11. 16. 21. 26. 32, *garment*, both of men and women. The more common form is δαλματική.

12. Διλόφιος, 18, 46; from λόφος, *neck; τύλη διλόφια*, a bolster or pillow for two necks, i. e. two persons.

13. Δίπελμος, 9, 12; *bisolis, double-soled;* from πέλμα, *sole*.

14. Δίτροχος, 15, 31; *birotus, two-wheeled*, from τροχός.

15. Δόρκιος, 8, 21; *belonging to a deer*, from δορκάς.

16. Δορμιτώριον, 15, 26 (δωρμιτώριον,* 15, 27); the Latin *dormitorium*, but with a different meaning, — not a sleeping-room, but a carriage in which one can sleep.

17. Ἔντευξις, 7, 72; *petition to bring a suit*, the Latin *postulatio*.

18. Καλικαρικός, 9, 1; or καλιγαρικός. It is apparently an adjective, but whether derived from καλίκιοι, the Latin *calcei*, or from καλλίγα or καλίγιον, the Latin *caliga*, I cannot say.

19. Κανθός, 15, 28; *tire of a wheel;* cf. Schol. Il. 5, 724.

20. Καράκαλλον, 17, 80. 95, *cape*. Why Mommsen, p. 67, assumes the form καρακάλλεις, and, p. 71, *caracallis*, I do not know. See Du Cange, s. v. *caracalla*.

21. Κάριον, 15, 30; probably a vehicle.

22. Κᾶρις, 15, 29; in classical Greek the designation of a *small sea-crab*, here of a *vehicle*, probably on account of some resemblance of the latter to the former.

23. Καρούχα, 15, 28, the Latin, or rather Keltic, *carruca* or *carrucha*, *a vehicle*. See Du Cange, s. v. *caruca*.

24. Κατῆνα, 15, 15; the Latin *catena*, *chain*. Sophocles writes κατήνα.

25. Κλεῖμαξ, 14, 6; unless a clerical or mechanical error, it is another form for κλῖμαξ, *stairs*. Suidas: κλείμαξ καὶ κλειμακισμός, πάλαισμα ποιόν (a certain grasp or trick in wrestling.)

26. Κνησιόναιδος, 13, 8; undaubtedly from the root κνάω, *to scratch;* probably an instrument for scratching. Mommsen conjectures κνῆστρον αἶδους.

---

* Most probably a mistake of the stone-cutter.

27. Κνήστριον, 13, 9 ; probably the same as κνῆστρον.

28. Κομβαῶνες, 9, 11 ; the translation of the word *campagi* in the Latin text, from κόμβος, *a ribbon ;* here boots or shoes fastened by ribbons. The Latin word *campagus* occurs also in another form *gambagus,* and this is derived from the Gallic word *gamba* (the French *jambe*) the joint uniting the leg and foot. See Du Cange, s. v. *gamba,* who mentions also a compound, *subgamba,* the part of the foot immediately below the gamba.

29. Κόνειλα, 15, 41 ; of the same meaning as γαβάθα. It may be a misspelled word, derived from κῶνος, *cone,* like κωνίς, a cone-shaped vessel.

30. Κόστα, 15, 19. From the class of words among which this article is enumerated, it is probably a part of a vehicle, and from the addition of the numeral β′, it appears that it was made and sold by pairs. I consider it the Latin word costa, *rib,* and the thing a piece of wood or prop, intended to give shape and support to the structure.

31. Κουρσώριος, 9, 14; the translation, or rather adoption, of the Latin *cursorius.* Suidas : κοῦρσωρες· οἱ διατρέχοντες. κοῦρε γὰρ τὸ τρέχε.

32. Λεόπαρτος, 8, 39 ; unless a clerical or mechanical error, it may be another form for the common λεόπαρδος.

33. Λύνγιος, 8, 35 ; probably for λύγκειος, from λύγξ, the Latin lupus cervarius, Hirſchluchs. The writing λύνγιον, if not a mistake, is to be noticed.

34. Λωράμεντον, 8, 8 ; the Latin *loramentum, leather-work, straps.*

35. Μελίνη, 8, 29 ; whether it be another form of μελής, an animal found in Egypt, or of the Latin *meles* or *maeles,* a *badger* or *marten,* it is evidently the name of an animal.

36. Μοδίολος, 15, 3 ; the Latin diminutive *modiolus,* which has various meanings, and among them that which it seems to have here, viz. *hub.*

37. Μουλιωνικός, 9, 5; the Latin *mulionicus, belonging to a muleteer.*

38. Ὀβιφέρι, 8, 25 ; the Latin *ovifer,* even the Latin form of the genitive being retained, a *wild sheep,* πρόβατον ἄγριον. See Du Cange, s. v. *ovifer.*

39. Πείλιος, 8, 15 ; another form for πίλιος, *hat ;* the Latin *pileus,* which is again derived from πῖλος, *felt.*

40. Περιφορινωνοικός, 9, 20 ; the reading is extremely doubtful ; Le Bas conjectures περιφορίνων ἢ καὶ, a very plausible conjecture. The word would be a compound of περὶ and φορίνη, *a thick, stout skin,* and

signify a shoe made entirely, all round, of stout leather. From the same stock there is a verb φορινόω, *to cover with stout leather.*

41. Πίβρατος, 7, 76; the Latin *privatus*, with a singular transposition for πρίβατος, probably a clerical or mechanical error, as the word πρίβατος occurs in other writers. (See Sophocles's Gloss.) Suidas: πρίβατον, Ῥωμαία ἡ λέξις.

42. Πουβλικάριον, 8, 43. This word is probably the result of a double mistake. The clerk who wrote the Latin original wrote *pulvicare* for *pulvinare* or *pulvinar;* and the Greek translator translated it by πουβλικάριον, which might be a later word transplanted from the Latin as well as πούβλικος and πουβλικίζω of the same stock.

43. Ῥάδις, 15, 5, a *spoke*, the Latin *radius.*

44. Ῥαῖδα, 15, 26, the Latin, or rather Gallic, *rheda.* Sophocles writes ῥαίδα.

45. Ῥῆγλα, 15, 13, the Latin *regula*, Deichſelpflock, what in the earlier Greek is called πάτταλος. Sophocles writes ῥήγλα.

46. Σαράγαρον, 15, 23. 24. 28; the Latin *sarracum, a vehicle.*

47. Σγάλη, 14, 6; the Latin *scala.*

48. Σέγεστρον, 8, 42. 43; the Latin *segestre* or *segestrium*, a *covering of leather*, what the earlier Greek calls δέῤῥις.* See Du Cange, s. v. *segestrum*, who mentions besides the Latin *segestrum* the Greek σέγαστρον.

49. Σετιῶνες, 15, 7. Mommsen thinks it may possibly be the Latin *septiones*, meaning *the interior space of a covered vehicle*, the Latin *capsus* and the Greek ταῤῥίον.

50. Σημοδία, 15, 41; the Latin *semodius* or *semimodius.* See Du Cange, s. v. *semodius*, where he mentions the Greek form ἡμιμόδιον.

51. Στήμων, 15, 11; the Latin *temo, pole of a vehicle*, for the earlier Greek ῥυμός. In the earlier Greek στήμων signifies the warp in weaving, and the upright sticks in wicker-work.

52. Τειμή, 17, 26; for τιμή.

53. Τροχάδιον, 9, 12. 13. 14; from τρέχω.

54. Φαπιάλιον, 17, 59. 74; the later Latin *faciale*, which Du Cange, s. v. *facialis*, defines: orarium, linteum tenue, quo facies extergitur. The later Greek has a word, προσόψιον.

---

* Fest. p. 70: Δέῤῥεις Graeci appellant pelles nauticas, quas nos vocamus segestria.

55. Φαμελιαρικός, 17, 29. 35. 56. 18, 4. 13. 34. 43. 53; in one instance φαμιλιαρικός, 17, 77; the Latin *familiaris, servant, slave.*

56. Φασκεία, 18, 40. 41. 42. 43; another form for φασκία, unless it be a clerical or mechanical error.

57. Φασκία, 18, 38. 39. 44. 45; the Latin *fascia, bandage.*

58. Φασκίνια, 18, 37; of the same origin as the preceding words; it may signify the class of articles, as distinguished from the single articles; or the superior kind of the article.

59. Φάσκος, 14, 7. 12; the Latin *fascis.* The later Latin *fascius* or *fascium* (see Du Cange, s. v.) may have formed the transition to the Greek form φάσκος.

60. Φενικουλα, 15, 21. It cannot be the Latin *feniculum, fennel,* as this would not suit the class of terms of which this chapter (of the woodwork of vehicles) treats. It seems to me more probable that the word is formed from *fenum, hay,* designating a vehicle, or part of a vehicle, used for conveying hay.

61. Φόρμη, 9, 1; the Latin *forma, last,* for the Greek καλόπους, which is mentioned in the same place.

62. Φοῦρκα, 15, 9; the Latin *furca, prop,* supporting the vehicle while the cattle are put in.

2. *From the Fragments of Karystos in Euboea.*

1. Ἀκκουβιτᾶρις, 16, 6; evidently a Latin word, either a change of *accubitorius* * or *accubitalis.*

2. Ἀκκούβιτον, 16, 6; the Latin *accubitum.*

3. Ἀπάιος, or ἀπάιον, 16, 90; not yet explained.

4. Ἄφρος, 16, 7; the Latin *Afer,* for the Greek Λιβυκός.

5. Βαρβαρικάριος, 16, 48; one who weaves golden threads into cloth. See Du Cange, s. v.

6. Βλάττη, 16, 87; the Latin *blatta, purple.*

7. Γερδία, 16, 55; *a female weaver,* for the earlier Greek ὑφάντης.

8. Δελματικομαφε, 16, 68; evidently a compound or derivative of δελματική, but I do not know the precise meaning.

9. Δελμάτιον, 16, 56; perhaps a diminutive of δελματική. See Du Cange, s. v. *dalmatium.*

10. Δευτερεῖος, 16, 49. 92. 95; the lengthened form for δευτέριος.

11. Εἱμάτιον, 16, 55; the dimiutive of εἶμα, garment.

---

* Petronius 30, 11, is quoted as an instance, but the best MSS. have *cubitoria.*

12. Ἐνλογεῖσθαι, 16, 12; formed after the analogy of ἀπολογέομαι, but with what meaning I do not know.

13. Ἱσγένη, 16, 94. 95. 96. 97. Mommsen suggests that it may be a corruption for ὕσγινον, *a vegetable color*, from ὕσγη, a shrub from which that color is obtained.

14. Καβαλλαρικός, 16, 5; *relating to a horse.*

15. Κοκκηρά, 16, 93; either another form for κόκκος, or it signifies the scarlet color, obtained from the κόκκος.

16. Λαδικηνός, 16, 9. 10. 11. 12. 47. 56. 74. 75. 77, for Λαοδικηνός, from Λαοδίκεια, the name of a city in Phrygia.

17. Μεταξαβλάττη, 16, 86. 98; a compound of μέταξα[*] (which is not a Greek, but perhaps a Persian word, meaning *silk*), and βλάττη, the Latin *blatta*, *purple.*

18. Μουτουνήσιος, 16, 46. 56. 71. 72. 73; or μοτονήσιος, 16, 47; according to Mommsen's ingenious conjecture, the adjective of Μουτίνη or Μοτίνη, the Latin Mutina, whose wool was highly valued.

19. Νεικαηνός, 16, 93; for Νικαηνός, the adjective of Νίκαια.

20. Νερβικός, 16, 10. 15. 76; the Latin Nervicus, relating to the Nervii.

21. Ὀγκία, 16, 47. 48. 49. 50. 51. 99. 100. 101; the inscription has in most of these places ὀ alone, which Mommsen, by mistake, completes into ὀγκία instead of οὐγγία or οὐγκία, the Latin *uncia.*

22. Ὀξυτυρία, 16, 89; probably the same as the later Latin *oxyblatta* (see Du Cange), *purple of the greatest brightness.*

23. Παραγαῦδιν, 16, 12.

24. Πεξαπρωτεία, 16, 101; evidently a compound of πέκτειν and πρωτεία; perhaps *combing or shearing of the first quality.*

25. Πεξουτός, 16, 55; *shorn;* perhaps a verbal adjective from a form πεξόω.

26. Πλουμάριος, 16, 44; the Latin *plumarius*, *embroiderer.*

27. Πλούμαρσις, 16, 8; from πλουμάριος; it is formed like a verbal noun, as if there were a verb of the same stock; *embroidery;* for the Greek ποικιλία.

28. Πρωτεῖος, 16, 48. 52. 94; *first.* The noun τὸ πρωτεῖον, occurring in earlier writers, presupposes the existence of this adjective, although it does not occur in earlier writers.

---

[*] See Du Cange, s. v. *metaxarii*, with its two very different meanings, *sericorum negotiatores* and *qui rebus venalibus imponunt metam pretii.*

29. Ῥειπήσιος, 16, 78; for Ῥιπήσιος, derived from the Latin *ripa*, and intended for a translation of the Latin *ripensis*, referring to Dacia ripensis.

30. Σηρικάριος, 16, 52; the Latin *sericarius*, for the Greek σηρικοπλόκος, *silk-weaver*.

31. Σκειπάζω, 16, 6; for σκεπάζω.

32. Στίχη, 16, 45; *tunic;* perhaps from the Latin *stica*, of which there is also a form *stigium*. See Du Cange.

33. Συψηρικόν, 16, 52. 100; the Latin *subsericus*, *not entirely of silk*.

34. Τάπης, 16, 2. 4. 5. 6. 7; used in these places as a masculine instead of a feminine.

35. Ταυρογαστρικός, 16, 78; from ταυρογάστωρ. Mommsen supposes the word to express the shape of the garment.

36. Ὑποβλάττη, 16, 88; according to analogy *somewhat scarlet*, *light scarlet*.

37. Φιβουλατόριον, 16, 73. 74; the Latin *fibulatorius*, from φίβουλα, the Latin *fibula*, *buckle*, *a garment fastened by a buckle*.

Professor Goodwin read the following paper on the relations of the Greek Optative to the Subjunctive.

From the time of the Alexandrian grammarians a special mood, called the Optative (ἔγκλισις εὐκτική), has been recognized in Greek as distinct from the Subjunctive (ἔγκλισις ὑποτακτική). The ancient classification has been called in question in later times, and many grammarians of high authority have adopted or favored a union of the Subjunctive and Optative in one mood, to be called the Subjunctive or *Conjunctive*, in which the Subjunctive (commonly so called) is to supply the primary tenses, and the forms commonly assigned to the Optative the secondary tenses. Thus the Present Optative would be called an *Imperfect* Subjunctive; ποιῶ and ποιοῖμι, for example, being supposed to bear the same relation to each other as *faciam* and *facerem* in Latin.

This was first reduced to a systematic form by Kühner, who, indeed, discards the common names Subjunctive and Optative (except as explanatory terms), and adopts the cumbrous expressions "Conjunctive of the primary tenses" and "Conjunctive of the secondary tenses." His views have become widely known in England through Jelf's Grammar, based on the larger work of Kühner, and still more in America through the Andover translation of Kühner's School Grammars. Rost, in his *Griechische Grammatik*, § 118, says: "The so-called Optative is nothing but a peculiar form of the Subjunctive, and stands to the Greek Subjunctive in the same relation as in other languages the Imperfect and Pluperfect Subjunctive to the Present and Perfect." Donaldson in his New Cratylus (p. 617, 2d ed.) says: "It has long been felt by scholars on syntactical grounds, that, considered in their relations to each other and to the other moods, they [the Subjunctive and Optative] must be regarded as differing in tense only." Again (p. 618): "These moods have no right to a separate classification." Crosby, in his Grammar, § 591, says of this classification, that "it deserves the attention of the student, although it is questionable whether it is best to discard the old phraseology."

As the classification of Kühner has thus been introduced into no small proportion of the elementary grammars used in our schools, so that many boys are now taught to call the tenses commonly known as the Present and Perfect Optative by the strange names of *Imperfect* and *Pluperfect Subjunctive*, the question becomes not merely of theoretical, but eminently of practical importance. In fact, it meets every scholar, and more especially every teacher of Greek grammar, the moment he reaches the paradigm of the regular verb. If it were merely a question of convenience, therefore, it would be highly important to have it settled, for the sake of uniformity.

The question, *What shall constitute a distinct mood in any language?* must be settled to some extent arbitrarily. No precise rule will meet all cases; yet we may safely maintain, that when any series of verbal forms, in which the chief tenses are represented, exhibits a closer connection in form and use among its members than it bears as a whole to any corresponding series, it is entitled to the rank of an independent mood. That this is true of the Latin Subjunctive is clear; and it is equally clear that the Imperfect and Pluperfect of that mood have sufficiently strong bonds of connection with the Present and Perfect to prevent them from being marked off as a distinct mood. A merely superficial view of the relation of the Greek Subjunctive and Optative might lead us to the idea, that the two combined would form a mood similar to the Latin Subjunctive, thus simplifying the Greek conjugation and introducing a new analogy with the Latin. But it is this fatal error of carrying the analogy between the Greek and Latin further than the connection of the two languages warrants, which has thrown this whole subject into confusion. When the Latin was looked upon as an offspring of the Greek, as the result of a union of the Aeolic dialect of Greece with barbarian languages in Italy, the presumption was decidedly in favor of such an analogy, and it would even have required strong proof to convince us of any radical difference in the modal systems of the two languages. But the more correct views now entertained of the origin of the Latin would rather lead us to believe that each language developed its syntax, and especially its modal system, independently. The modal system of the parent language of the Indo-European group is of course hopelessly unknown; and yet the comparison of the Latin and Greek verb with the Sanskrit (as the oldest representative of the family) sometimes enables us to determine special points in regard to the primitive forms with an approach to certainty. Thus, to take the simplest case, when we find *asti* in Sanskrit meaning *is*, we may be sure that some similar form existed with that meaning in the parent language of the Sanskrit, the Greek, the Latin, the German, &c., from which ἐστί, *est*, *ist*, &c. were derived. So when we find a Potential mood in Sanskrit, which presents striking analogies both to the Greek Optative and to the Latin Subjunctive, and furthermore find the analogy extending even to the Gothic, we must conclude that the primitive language contained the elements which the Greek developed into its Optative, and the Latin into its Subjunctive. (See Bopp's *Vergleichende Grammatik*, II. pp. 257 – 259.) Again, the absence in later Sanskrit of any form corresponding to the Greek Subjunctive might give rise to the conjecture, that the Greek developed that mood by itself; but in the Vedic dialect a few relics are found of a true Subjunctive, with a long connecting-vowel as its characteristic; for example, *patāti*, bearing the same relation to the Present Indicative *patăti*, as βούληται to βούλεται. This seems to show that a similar mood existed in the parent language. If this testimony can be relied on, we must conclude, not only that the Latin and Greek derived the rudiments of their modal forms from a common ancestor, but that they inherited them from a period anterior to the separation of the Indian branch from the Indo-European family. We should therefore expect to find that the elements are generally the same in the two languages, but that the development is essentially different; and that the refinements in signification, for which the Greek modal forms are especially conspicuous, have been for the most part developed by each language within itself.

Let us now examine the forms themselves, to see how far a parallel can be drawn between the Greek and Latin moods. In clauses expressing a purpose or object after ἵνα, &c. we find the Subjunctive and Optative used like primary and secondary tenses of the same mood: thus, where in Latin we have *manet ut hoc faciat*, and *manebat ut hoc faceret*, we have μένει ἵνα τοῦτο ποιῇ, and ἔμενεν ἵνα τοῦτο ποιοίη. But even in this case of strongest resemblance there is no place for the Future Optative, which corresponds to the Future Indicative. Again, in clauses expressing *general suppositions* after ἐάν or εἰ, or after relatives or temporal particles, depending on verbs which denote general truths or repeated actions, a correlation of the Subjunctive and Optative is found, analogous to that of the two divisions of the Latin Subjunctive; for example, in ἐὰν τοῦτο ποιῇ θαυμάζουσιν, *si hoc faciat mirantur*, and εἰ τοῦτο ποιοίη ἐθαύμαζον, *si hoc faceret mirabantur*. Here, however, the analogy ceases, if we except certain cases of indirect question hereafter to be noticed, and a Homeric construction in relative sentences expressing a purpose, which almost disappears from the more cultivated language.

Let us turn now to the Optative in wishes; for here, if anywhere, we may look for the primary meaning of this mood. From this use it derives its name; and especially this is its only regular use in independent sentences, except in Apodosis with ἄν. Here some have been so far misled by the supposed analogy of the Latin, as to translate the Present Optative by the Latin Imperfect Subjunctive (see, e. g., Damm's Lexicon Homer. et Pind., *s. v.* ἡβάω); but a slight examination will show that the Present and Aorist Optative are here so far from being secondary tenses of the Subjunctive, that they are equivalent to the *Present* Subjunctive in Latin, and refer to the future, while the Greek Subjunctive cannot even regularly stand in such expressions. Thus εἴθε εἴην is *utinam sim*, *O that I may be;* εἴθε γένοιτο, *utinam fiat*, *O that it may happen;* whereas *utinam esset* and *utinam factum esset* correspond to εἴθε ἦν and εἴθε ἐγένετο.

In ordinary Protasis and Apodosis the same relation is seen. The four Greek forms, ἐὰν ποιῇ, ἐὰν ποιήσῃ, εἰ ποιοίη, and εἰ ποιήσειε, have only one Latin equivalent, *si faciat;* the four shades of meaning for which the Greek required four forms being thought worthy by the Latin of but one. Here therefore the absurdity of classifying the last two as secondary forms of the first two, in conformity to a Latin analogy, is especially clear. What the Latin analogy would lead us to expect as secondary forms, the equivalents of *si faceret* and *si fecisset*, can be expressed in Greek only by the Indicative. In Apodosis the Optative with ἄν is equivalent to the primary tenses of the Latin Subjunctive, and not to the secondary tenses: thus, ποιήσαιμι ἄν is equivalent to *faciam* (not to *fecissem*, which would be ἐποίησα ἄν). Here likewise the Subjunctive cannot be used in Attic Greek. This analogy between the Optative and the *primary* tenses of the Latin Subjunctive might lead us even to the view that the latter ought rather to be called an Optative, for which view there are certainly much stronger reasons than for the opposite one which we are considering. The analogy of the Sanskrit also seems to show that the Present Subjunctive of the Latin and the Optative of the Greek are descended from the same original forms.

In indirect quotations and questions the Optative is used after past tenses, each tense of the Indicative or Subjunctive in the direct discourse being then changed to the corresponding tense of the Optative. Thus, εἶπεν ὅτι ἃ δύναιτο ποιήσοι, *he said that he would do what he could*, implies that the direct discourse was, ἃ ἂν δύνωμαι ποιήσω. Here the Optative may be the correlative of the Subjunctive; but it is quite as often the correlative of the Indicative, as the Subjunctive can stand after primary tenses only when it would have been used in the direct discourse. One tense of the Optative, the Future, can never represent a Subjunctive, as that mood has no corresponding tense; but it always represents a Future Indicative. Nothing more need be said to show the absurdity of calling this tense a secondary tense of the Subjunctive. The three remaining tenses of the Optative can with no more propriety be called secondary tenses of the Subjunctive than of the Indicative, for they represent both on precisely the same principles. This is especially obvious in regard to the Aorist, which has two distinct meanings in indirect questions, — one when it represents an Aorist Indicative, and another when it represents an Aorist Subjunctive, the direct form. Thus, ἠγνόει τί ποιήσειεν may mean either *he knew not what he had done*, or *he knew not what he should do;* as the direct question may have been either τί ἐποίησα; *what did I do?* or τί ποιήσω; (Aor. Subj.), *what shall I do?* Strangely enough, this very class of sentences is supposed to furnish the most striking analogy between the Latin Subjunctive and the Greek Subjunctive and Optative combined. *Non habet quo se vertat*, and *non habebat quo se verteret*, are indeed equivalent to οὐκ ἔχει ὅπη τράπηται and οὐκ εἶχον ὅπη τράποιτο, but a single example like ἠρώτων αὐτὸν εἰ ἀναπλεύσειεν, *I asked him whether he had set sail* (Dem. in Polycl. p. 1223, 21), in which ἀναπλεύσειεν represents an *Aorist Indicative*, shows that the argument proves too much. Indirect quotations and questions therefore afford us more proof that the Optative is a secondary form of the Subjunctive, than that it is a secondary form of the Indicative.

Two tenses of the Indicative, the Imperfect and Pluperfect, have no corresponding tenses in the Optative, so that these are regularly retained in the Indicative in indirect discourse; thus εἶπεν ὅτι ἐμάχοντο means, *he said that they had been fighting*, i. e. *he said* ἐμάχοντο. A rare exception to the last principle shows conclusively the propriety of the names commonly given to the tenses of the Optative. The want of a tense in the Optative to represent the Imperfect Indicative in examples like the last was naturally felt as a defect; and in the Infinitive and the Participle this want was supplied by using the Present in a new sense to represent the Imperfect, the peculiar use being always denoted by something in the context. In a few instances we find the Present Optative used in the same way to supply the want of an Imperfect, the context making it clear that the tense is not used in its ordinary sense. Such an instance is found in DEM. in Onet. I, 869, 12; ἀπεκρίναντο ὅτι οὐδεὶς μάρτυς παρείη, κομίζοιτο δὲ λαμβάνων καθ' ὁποσονοῦν δέοιτο Ἄφοβος παρ' αὐτῶν, *they replied that no witness had been present, but that Aphobus had received the money from them, taking it in such sums as he happened to want.* Here παρείη represents παρῆν, and κομίζοιτο represents ἐκομίζετο, which would ordinarily be retained in such a sentence. Other instances may be found in XEN. Hell. VII, 1, 38 (quoted by Madvig, *Synt.* § 130); and in XEN. Hell. I, 7, 5. If now the name of *Imperfect* be given to the Present Optative in its ordinary use, when it represents a Present of the direct discourse, and is merely translated by an Imperfect to suit the English idiom, what shall we call this true *Imperfect* Optative, which really represents an Imperfect Indicative, and stands where an Imperfect Indicative is the regular form?

We see then that the Optative was used in the whole class of constructions known as *oratio obliqua*, or *indirect discourse*, as the correlative not merely of the Subjunctive, but also of the Indicative, and that it possessed the power of expressing in an oblique form every tense of both those moods in a manner of which the Latin presents hardly a trace. In fact, this use of the Greek Optative presents one of the most striking examples of the versatility and flexibility of the language, and of its wonderful adaptation to the expression of the nicest shades of thought of which the human mind is capable. This single use of the mood seems sufficient in itself to prevent any one who has any appreciation of its force from assigning to it the subordinate rank of a secondary form attached to the Subjunctive.

Some general remarks by President Felton, upon the connection of the Greek and Latin modal forms as illustrated by the Sanskrit, led Professor Agassiz to offer some remarks, expressing a general disbelief in the supposed derivation of later languages from earlier ones, he regarding each language and each race as substantially primordial, and ascribing the resemblances and coincidences of language to a similarity in the mental organization of the races. Whereupon President Felton pointed out some of the lexical and inflectional coincidences among affiliated languages, which were in his opinion utterly inexplicable upon any supposition other than that of historical relation.

Professor Bowen made some general observations on the supposed hereditability of peculiar traits of bodily and mental organization, and especially of mental disease.

There has been, he thought, an increasing tendency of late years to enlarge the number of such traits, and to insist more and more upon the certainty of their transmission. It has even been proposed to prohibit by law the intermarriage of persons who have mental or bodily defects or diseases which might be transmitted to their offspring. And as to insanity, there is too much reason to fear that persons have been actually driven mad through the fear, which has been carefully inculcated upon them, of having inherited insanity. It will be admitted, that, if there is anything which can foster and rapidly develop some latent tendency towards mental disease, it is dreading, and brooding over the dread, of that great calamity, regarded as an inevitable event, which must sooner or later happen. In the opinion of many, crime and sin are no longer imputable to individual men and women, but to what the lawyers call "the act of God," which entailed upon the offenders inevitably a wicked temper, a perverted will, or a diseased brain. The only proper name to be given to this doctrine is *physiological fatalism*. It rests upon a perversion of one of the darkest sayings of the old Jewish Scripture, that the sins of the fathers shall be visited upon the children, even to the third and fourth generation; — a seemingly harsh doctrine, though, in the meaning which was probably intended, it is certainly true; and which, at any rate, is not so terrific as that perversion of it, which teaches, that not merely the sins, but the congenital defects and diseases, implanted in us before birth, shall be visited upon our innocent offspring, not for two or three generations only, but for all future time.

Professor Bowen maintained that the assumed evidence upon which this theory rests is unscientific and unsatisfactory, and can be confronted by a great amount of testimony leading to an opposite conclusion. He began by admitting, or taking for granted, every *fact* which is commonly adduced in its support, — excluding, of course, such a statement of that fact as may involve any theory respecting its nature. Thus, it is a fact that insane persons can generally find among their ancestors, or their relatives in the ancestral line, one or more persons who also have been insane. The illogical, because hypothetical, statement of this fact is, that the former *inherited* their insanity from the latter. It is also a fact, that children often bear a certain measure of resemblance, in body, mind, or character, to their parents or grandparents; and the hypothetical statement of this fact is, that they have inherited these traits.

Now, one of three suppositions must be true; — either, 1. there is a law of nature that bodily and mental peculiarities shall be transmitted by inheritance; or, 2. there is a law that they shall not be so transmitted; or, 3. there is no law about the matter, and it is mere accident whether parental or ancestral peculiarities reappear in the offspring or not. The physiological fatalists maintain the first of these suppositions; Professor Bowen said he believed the second; but, as against the fatalists, it is enough to substantiate by satisfactory evidence the third.

The mistake of those who favor the doctrine of hereditary descent arises from the common error, — an Idol of the Tribe, as Bacon calls it, — which consists in regarding only the affirmative cases; "and though there be a greater number and weight of instances to be found on the other side, yet these it either neglects and despises, or by some distinction sets aside and rejects." "Such is the way of all superstition," Bacon continues; "but with far greater subtilty does this mischief insinuate itself into philosophy and the sciences. . . . . It is the peculiar and perpetual error of the human intellect, to be more moved and excited by affirmatives than by negatives; whereas, it ought properly to hold itself indifferently disposed towards both alike. Indeed, in the establishment of any true law of nature, the negative instance is the more forcible of the two." Dr. Johnson pithily described this popular fallacy, when he said, that the one dream which comes to pass is remembered and quoted, while the ninety and nine which do not come to pass are forgotten. Just so, one case of an insane child or grandchild, nephew or niece, of an insane person, is quoted as proof of the doctrine of hereditary transmission; while the twenty other offspring of the same person, who never showed a trace of insanity, are forgotten. It is difficult to adduce evidence on this point; for while it is comparatively easy to trace back the pedigree of a madman, and find insanity somewhere in his family, either in the direct or collateral line, since statistics prove that at least one out of a thousand in the whole community suffer more or less from this disease, — it is not so easy to trace the line forward, to lay bare the history of a whole family, and to prove that no one of them, at any time or in any degree, has suffered from insanity. Only in the case of a prominent historical family, where all the facts are on record, or are generally known, is such evidence attainable.

Fortunately, there is one case of this sort that bears directly on the question. George III. may be said to have been constitutionally insane, the malady breaking out several times in the course of his life with great violence. In 1788, in 1801, and again in 1804, the disease appeared, each attack incapacitating him for the exercise of his royal functions for several months. In 1810, there was a fourth and final attack, the disease then darkening into hopeless imbecility, and continuing for ten years, the remainder of his life. It is now stated, also, though the fact was not divulged in his lifetime, that he had an earlier attack, in 1764, when for some weeks he was under restraint. But if we trace back his lineage for six generations, as far as James I. of England, not one of his ancestors can be found to have ever suffered from this complaint. Besides, he had seven brothers or sisters, and seven uncles or aunts; and as several of these married and had families, he had a goodly number of cousins and of nephews or nieces. Yet it does not appear that one of these ever showed a trace of insanity. Evidently, then, George III. did not inherit the disease. Did he transmit it? Here the evidence is equally abundant and satisfactory. This insane king had fifteen children; and as many of these had families, either legitimate or illegitimate by English law, there was a crowd of grandchildren. The Duke of Clarence alone had, by Mrs. Jordan, ten children. A very hurried search will enable one to enumerate 15 children, 22 grandchildren, and, including the children of the present Queen, 18 great-grandchildren, — say, in all, 55 descendants. Yet in this large number there does not seem to have been *one* undoubted case of insanity; and as kings and princes live in glass houses, if there had been one such case, we should probably have heard of it. Not one *undoubted* case, we say; for there is a doubtful one. The oldest of the FitzClarences, created Earl of Munster, committed suicide in 1842; and as he had shown great despondency for six weeks before his death, so that a physician was at last called in, a coroner's jury, if one had sat in his case, might have brought in a verdict of insanity; and the physiological fatalists, remembering his grandfather, would probably have called it a case of hereditary insanity, overlooking the fifty-four other descendants of George III., who have appeared as sane as other people.

One such example as this of George III. appears conclusive against the doctrine of the necessary hereditary transmission of mental disease. We thus exorcise the terrific phantom which, as already said, has probably driven many persons mad. There is more than one prophecy, the mere announcement of which has caused its own fulfilment. But the case is not a solitary one. Observation among the families of his own acquaintance, Professor Bowen remarked, *always made on the principle of collecting the negative as well as the affirmative instances*, had satisfied him, that the rule — that is, the law of nature — is *against* the hereditary transmission. If there are apparent exceptions, the *majority* of the descendants manifesting the same disease as the parent or ancestor, they are explicable through the action of sympathy, unconscious imitation, or exaggerated fears proceeding from the cause just mentioned. Cases enough can be cited of the recurrence of the phenomenon from such causes, wherein the persons concerned were not related by blood, so that inherited disease was out of the question.

Thus, up to 1839, there had not been for sixty years a case of suicide by precipitation from the top of the London monument. In that year, a young woman named Moyes threw herself off from it and was killed. Within three months, a boy only sixteen years old, whose previous conduct had shown nothing unusual, jumped off with the same result. To prevent another case, the keeper was required to accompany every person who ascended the stairs. But before the year was ended, another young woman, never before thought to be insane or to have any cause to wish for death, contrived to elude him by going to the other side of the balcony, where she also jumped off and was killed. Then, at last, the iron railing of the balcony was carried up and united to the stone work above, making a sort of cage which had no exit except by the stairs.

If these three suicides had been brothers and sisters, their case would have been put down as a strong instance of family insanity. Then may not the repetition of suicide or other insane acts by members of the same family be the result of this sympathetic propensity, or blind imitativeness, roused into keener action by the example being set near home, rather than the result of inherited mental disease? If so, how forcible is the lesson that we ought in every way to discourage and disprove this doctrine of the hereditability of insanity! Other cases are not wanting. One was reported to the Paris Academy of Medicine, that, a soldier at the Hôtel des Invalids having hanged himself on a post, his example was soon followed by twelve other invalids, and only by removing the fatal post was the suicidal epidemic at last arrested.

Thus far we have treated only of insanity. But the question is a broader one. Do any peculiarities of mental or bodily organization, appearing for the first time in one generation, tend to perpetuate themselves by the law of hereditary descent? Besides the *specific* traits, which every animal has in common with the species to which it belongs, it has also *individual* traits or peculiarities, always prominent enough to enable us easily to distinguish every individual from its fellows of the same kind, even if they are the offspring of the same parents, and sometimes so strongly marked as to deserve the name of monstrosity or disease. Does nature tend to perpetuate or efface this distinction between specific and individual traits? The question is one of great importance and the highest generality, affecting the basis of zöological science. If this distinction is feebly marked and transitory, then there is no fixed system or plan in the animal kingdom, and nothing for science to do except to chronicle a succession of fleeting peculiarities and shifting boundaries. If, on the other hand, the distinction is broad and stable, if what Blumenbach calls the *nisus formativus* necessarily tends to perpetuate the species by restricting the law of hereditary transmission to the specific traits, and excluding it from the individual peculiarities, then the dominion of law, the unchangeable purposes of the Creator, extend alike over the inorganic and the organic kingdoms, and nature becomes one consistent, permanent, and intelligible whole. Undoubtedly apparent exceptions occur, through a complexity of circumstances which science cannot always unravel. Sometimes a specific trait is wanting, and the result is a monstrosity, a *lusus naturæ;* but nature takes care to kill out such monsters, usually in the first generation. Sometimes an individual peculiarity of the parent, not so strongly marked as to deserve the name of a monstrosity, reappears in the offspring. But such cases are infrequent, exceptional, and, at the utmost, not continued beyond two or three generations. They are casual repetitions, such as are always possible in the perpetual shifting and shuffling of individual traits; they are not the results of hereditary transmission. Otherwise, — if a law of nature favored the transmission, — all individual peculiarities would successively disappear, being merged in specific traits, and each new birth would present successively a more perfect copy of its parent, until at last, all differences being effaced, individuals of the same species could no more be distinguished from each other, than a heap of silver coins freshly struck from the same die at the mint. But God's creative processes are not thus mechanical; infinite variety, no less than perfect order, is a law of nature.

The first argument, then, against the doctrine of hereditary resemblance, is founded on this admitted fact of the marvellous variety in nature. Among millions of human faces, no two can be found so nearly alike as to be mistaken one for another. All judicial inquiries, all property in animate beings, rest upon the universal recognition of this fact. Otherwise, a jury could never be satisfied that *this* man is the horse-thief, and *this* horse is the very animal that he stole. Herein is one striking difference between the organic and the inorganic kingdoms; that whereas, in the latter, the laws of nature work with absolute uniformity, the typical form, the typical act, being always exactly reproduced; in the former, the organic kingdom, the operation of the law is infinitely varied, and Nature never exactly repeats herself. As instances of the former, take the chemical composition of a drop of water whencesoever obtained, the fall of a heavy body from a height, the forms assumed by various crystallizing substances. In these cases, the similarity is perfect; man's machine-work offers but a faint copy of the marvellous accuracy of nature's action and workmanship. For an instance of the latter, take Leibnitz's challenge to his companions, to find any two leaves upon the same tree or bush, one of which should be the precise counterpart of the other. They could not. But the dividing line is strongly marked and permanent between the personal or individual traits that are thus infinitely varied, and the specific traits which are reproduced with great, but not absolute uniformity. The most striking proof that there is a law of nature prohibiting the repetition of abnormal forms is found in the fact, that, as the most fertile source of such forms is from the crossing of distinct races, nature invariably makes the product of such crosses sterile or very short-lived.

How came it, then, ever to be supposed, that nature favors the hereditary transmission of personal traits of mind, character, and external form. From the popular fallacy, already exposed, which leads the observer to fasten upon the few affirmative, to the exclusion of a crowd of negative, instances. The different features of mind and body are very numerous, and every one of them may show likeness or unlikeness with the corresponding feature in the parent. Analyze any case of supposed strong resemblance, and it will be found to consist in one or two features only, to the exclusion of six or eight others, which are wholly unlike those of the parent. Thus, a strongly marked nose, together with eyes of a peculiar shape and hue, are enough to make out what is called a marked case of family likeness; though mouth, chin, forehead, complexion, hair, outline of the face, and shape of the head may be as unlike as if they belonged to a stranger by blood; and though even eyes and nose of the same pattern may be found, almost as often as we choose to look for them, among the community at large. Again, as likeness to a grandparent is held to prove hereditary transmission just as much as likeness to the immediate parent, and as everybody has at least two parents and four grandparents, there is no cause for wonder, if, among these six progenitors within two generations, a counterpart should be found for every feature of the offspring, though accident, and not inheritance, formed the law of distribution. For, excluding malformation, there are not more than half a dozen varieties of each feature which are strongly marked enough to constitute a ground of likeness. Thus, a nose peculiar enough to be a recognized point of likeness, and yet not deformed, must be decidedly either aquiline, Roman, Grecian, flat, pug, or a *nez retroussé*. Here are but six possible forms, and according to the law of chances, we might expect to find a counterpart for any one of them among the six progenitors. It is because resemblance between parent and offspring is found much less frequently than, according to these considerations, we should have a right to expect it, even if the forms were distributed at random, or without any law at all, that we are led to believe the law of nature, if there be one in the case, favors unlikeness rather than resemblance; or that Nature *takes care to vary* her work, as she certainly does with the leaves of the same oak-tree, among which you may hunt for hours without finding two whose indented outlines are at all similar.

But supposed family likeness more frequently consists in the *general expression of the countenance*, in which respect, a large family often bear a marked resemblance to each other, while their features, taken separately, are wholly unlike. This similarity of expression, however, is not congenital, but is gradually superinduced upon Nature's work, through living together a long while in sympathy and confidence under similar influences and education, whereby, as is often remarked, husband and wife, after a long life of matrimony, come to resemble each other. And if this is the case even with adults, who come together only after age has given rigidity to the face and stereotyped its expression, how much more readily will the plastic features of infancy and children yield to similar influences and adopt the family pattern. Hence it is, that this likeness of expression generally cannot be seen in early infancy, and appears very faintly at first, but deepens and strengthens as the child advances in years. Through the same cause, also, the handwriting of the different members of the same family is often strikingly similar, though they may have learned how to write from different teachers; and probably no one will maintain handwriting to be hereditary.

All that has been said of the external features is applicable, also, *mutatis mutandis*, to traits of mind and character. The hereditary transmission of the latter is even less probable than of the former, on account of the acknowledged almost immeasurable diversity of mental traits, and because the few points of similarity can be more probably referred to the influence of education, imitation, involuntary sympathy, and other like bonds which draw together and assimilate parent and child, however originally unlike. But in spite of these causes all tending to create ultimate resemblance, we still find genius and stupidity, temper, affection, and taste so very unequally and capriciously distributed among members of the same family, that the diversities can be attributed only to nature's own ordinance established for this very purpose. Analyze any case presented as evidence of the opposite theory, and we see more plainly than ever the error of laying stress upon the affirmative points, while the negative instances are overlooked or forgotten.

Mr. George Combe cites an author who attributes the fatality which attended the House of Stuart "to a certain obstinacy of temper, which appears to have been hereditary and inherent in all the Stuarts except Charles II." But this perverse wilfulness seems more probably attributable to the education received, every Stuart being trained by a Stuart, and by an Anglican clergy then fanatically attached to the dogmas of the divine right of kings, and the subject's duty of passive obedience. Charles II. had his training in the hard school of adversity and exile, where he became more pliant. But how many other points of resemblance can be found in the succession of Stuart kings? Compare the first of them who sat on an English throne, the slobbering, pedantic, cowardly, fondling James I., with his grave, decorous, and melancholy son, treacherous as a prince, but rigidly moral as a man, and dying at last the death of a martyr and a saint. Or compare this martyr-king with his good-for-nothing though good-natured son, Charles II., or the latter with his brother, the stupid and cruel bigot, James II. Only in "the good Queen Anne," as she was sometimes called, weak and prejudiced, but motherly and fondling, and much under the influence of favorites, do we find a reproduction of some characteristic traits of her great-grandfather James I. Take any other line of European kings, and as great diversities of character and ability may be found among them as among the Stuarts. On the whole, the doctrine of the hereditary transmission of mind and character may be said to be contradicted by all history, as well as by every day's experience.

The President, Dr. Bigelow, remarked that undoubtedly many of the errors in science, and still more in popular belief, arose from hasty generalization, and the acceptance of a few striking or remarkable facts, to the exclusion of a greater number of common negative or uninteresting facts, thus establishing as general rules things which were only exceptions to such rules. The medical profession, however, were agreed, as the result of general observation, that although most diseases terminate with the individual, yet that certain peculiarities, not only of bodily structure, but of tendency to disease, are transmissible by inheritance. Thus a sixth finger, near-sightedness, squinting, and peculiarities of complexion, features, and stature, are more or less transmissible from one generation to another. So also, among diseases, consumption, scrofula, gout, some eruptive complaints, nervous affections, and, to a certain extent, carcinoma, apoplexy, and insanity. The hereditary predisposition is most marked when both parents are subjects of the peculiarity or disease. Dr. Bigelow cited some cases in which, both parents having been affected with a disease, all the children had eventually died of the same disease. If procreation could be regulated by authority, he did not see why the peculiarities of individuals could not be perpetuated as races or varieties of men, as well as they now are of domestic animals. According to the nature of the transmitted peculiarity, such races would either be multiplied indefinitely, or the race would die out and disappear.

The great obstacle and safeguard against the transmission of such diseases consists in the crossing of the race or breed. Every cross effected with a healthy stock reduces the liability one half, and every second cross reduces it to one quarter, and so on. If it were otherwise, certain races would become extinct. There is probably no individual in this room, who does not inherit from some of his ancestors a title to phthisis or gout or insanity. Yet the great dilution or weakening of this title, under repeated crosses, renders the predisposition inconsiderable and ineffectual.

Mr. Ritchie exhibited a quantity of liquefied nitrous oxide, condensed by a very powerful pump, of his own contrivance, and exhibited the instantaneous freezing of mercury in the liquid, while charcoal burned with vivid ignition, as in oxygen gas, at its surface.

The President read the following letter from the venerable Josiah Quincy.

TO JACOB BIGELOW, M. D., *President of the American Academy of Arts and Sciences.*

SIR, — I shall be obliged if the Academy will so far deviate from their usual practice as to anticipate their regular time of meeting in February next, and, instead of the 12th, assemble at my house on the evening of the 4th of that month, on which day I enter my ninetieth year.

The occasion is peculiar, and not likely soon to recur again, or to be drawn into a precedent. To me "the silver cord is not yet loosed," though much frayed and life-worn, and the favor will be to me a gratification and rejuvenescence.

With perfect respect, I am yours, &c.

JOSIAH QUINCY.

BOSTON, January 8, 1861.

Whereupon it was unanimously voted that the invitation be accepted, the letter placed upon the record of the present meeting, and that the officers of the Academy communicate to President Quincy the expression of the extreme interest of the Fellows of the Academy in the occasion which prompted this invitation, and their most cordial acceptance of it.

Four hundred and ninety-first meeting.

January 30, 1861. — STATUTE MEETING.

The PRESIDENT in the chair.

The Corresponding Secretary read a letter from the Hon. G. M. Dallas, the American Minister at London, enclosing a copy of correspondence with Lord John Russell, Secretary of State, and announcing the liberal donation by the British Government to the American Academy, of a complete set of the Geological Maps and Sections of the Survey of the United Kingdom of Great Britain.

Mr. J. E. Oliver, of Lynn, was elected a Fellow, in Class I. Section 1.

Professor Peirce presented the results of an investigation of the phyllotaxic numbers and their relations.

President Felton gave an account of the progress that had been made, and the results attained, in unrolling and deciphering the Herculanean manuscripts.

Dr. C. T. Jackson exhibited specimens of eocene tertiary coal from the Isthmus of Darien, near Chiriqui, similar in character to cannel coal, although of so much more recent formation.

Mr. Newcomb presented the results of an investigation of the dynamical theory of gases.

One of the most beautiful hypotheses ever propounded in physics is that which has lately been known as the dynamical theory of gases. This theory supposes a gas to be composed of isolated particles, moving about in every direction with great velocity, and continually striking and rebounding from each other. The expansive force is due to col-